Bates/Draft 10/3/68
Suggested remarks for Mr. Beggs
Dedication of Space Sciences Research Building
University of Florida, Gainesville, Fla.
October 7, 1968

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(Introductory remarks assumed)

We are gathered here today to dedicate a handsome new Space Sciences Research Building. I am sure that all of you who are intimately associated with the University of Florida take pardonable pride in the sheer physical evidence of accomplishment that this structure represents. But at times like these we realize that these ceremonies mark not an end, but a beginning.

In symbolic terms, what has been done so far is prologue - the preparation of a field for planting. Now the chief concern is to assure that the field is used wisely for maximum benefit to coming generations.

Our society today is changing at a rate that would have seemed unbelievable a few years ago. Recently I ran across a statement that half the knowledge learned in school by an engineering graduate of 1958 is obsolete today. If changes continue at present rates, at least half of what we will want our engineers to know in 1978 is not now available to us. Furthermore, we have no idea yet what it should be. We only know that we will want and need that unknown quantity.

Universities such as this one must accordingly bear ever increasing responsibilities that relate strongly to our nation's continuing progress. If we are to advance in the vanguard of scientific knowledge as it advances on every front, we must maintain a high level of basic research and intellectual activity of the kind that must be closely associated with graduate education.

Traditionally, the university has been concerned primarily with increasing the extent of knowledge, refining its accuracy, and preparing young people to put it to use. There has been no lessening in the importance of these functions, but they can no longer be confined to the academic community of scholars alone. The university is moving into the mainstream of the workaday world.

Many great social problems press in upon us. We need to learn how to apply our new knowledge effectively to solve them, drawing upon many disciplines and a diversity of skills. We cannot solve the problems of hunger, or air and water pollution, or crime, or any other of our modern-day dilemmas, without new approaches and new organizing methods. Piecemeal attacks on these problems simply will not work.

It is good to hear that you at the University of Florida are already working in this direction. We hear about your progress because NASA has for some time had a number of projects -- I think it adds up to 17 or 18 at last count -- which we support and monitor, and I know that some of these are of a multidisciplinary nature. The same kind of effort is going on at many other colleges and universities all over the country -- we have a total of about 1,400 grant and research contracts for the support of specific project-type research.

The kind of innovative thinking that is going on right here at your university, and at the others I have mentioned, is in my opinion one of the greatest tools this nation has for solving the human and social problems that beset us today.

Because these problems, like the space program, present an enormous challenge to management, I think that some of our experience at NASA might help point the way toward finding solutions.

We have called on the best of our country's industrial development and manufacturing capabilities; we have supplied in-house management to handle a program of dimensions few persons even dreamed of a decade ago. At peak, more than 20,000 companies and 420,000 people were participating.

But also, we have called upon the universities to supply much of the basic related fundamental knowledge that underlies all scientific and technological advancement. From the earliest days of the program, NASA viewed the university community not just as a source of assistance, but as full participants in the government-industry-university team.

The NASA university program was set up in 1961 with the dual purpose of giving universities throughout the nation an opportunity to participate in our programs, and to strengthen themselves in the process. Actually, universities had participated from the beginning, but not on such a broad scale.

The three main elements of the program have been (a) training grants to support students doing predoctoral graduate work in areas of interest to NASA, (b) facility grants for the construction of new space science laboratory facilities such as these we are dedicating today; and (c) research grants which permitted universities to develop their academic and research strengths by pursuing space-related studies largely of their own choosing.

The NASA university program has been successful in accomplishing its goals. Universities throughout the country have become extensively involved in the space program and have made major contributions. University scientists have conceived and developed satellite experiments which contributed directly to new scientific knowledge; they have carried out research in university laboratories on communications, meteorological satellites, and manned flight operations; they serve an advisory groups which plan and evaluate space activities; they train the thousands of scientists, engineers and managers who run the space program; and they are increasingly working with industry and regional organizations to quicken the pace by which research findings may be applied for the public good. But, most significantly, this has not been a one-way benefit: NASA has, of course, benefited directly; but at the same time, the universities gained the new knowledge and experience necessary to their continued scientific, technical and academic advancement. I think it is fair to say that they developed strengths and capabilities which previously were largely nonexistent; and the total store of scientific and technological knowledge available to the nation has been increased manyfold.

James E. Webb, who is retiring today after almost eight years as Administrator of NASA, has said: "...if you're going to build a bridge, or a store or anything else, you're going to build it out of materials. You're not going to build it out of dreams. Dreams are important but somebody has got to have materials...brought about by advances in ~~technologic~~ scientific knowledge and technological concepts..."

As a footnote to this quote, I might say that Mr. Webb's enormous personal dedication, and his brilliant management ability, have had much to do with out getting the materials he spoke of, but he had a lot to do with the dreams, too, and with making them into realities.

The space program we have developed in the past ten years provides clear directions and guidelines, as well as funds, for the creation of vital new technology. You cannot simply call a group of scientists and engineers together, give them some money, and say, "All right, now, create some new technology for mankind." You have to give them clear-cut, demanding goals that cannot be reached with existing technology and experience, but nevertheless are realistic and attractive enough to inspire continuing effort.

The space program serves admirably for this purpose. The Apollo Program, of which I shall have more to say later, is an excellent example. The main purpose of this great effort goes far deeper than merely permitting Americans to set foot on the moon. Much more important is that it requires us to do everything that is necessary to get there, perform useful scientific experiments, and get back safely. This kind of ability will permit us to perform any missions in space this country may require, near earth or out to distances of a quarter of a million miles or more.

If the United States did not have the space program to provide technological progress, it would have to have some other program like it -- or run the risk of falling behind other nations whose purposes are either openly or covertly aggressive. There is no other program I can even imagine which this country could sponsor that would produce so much new technology in so many vital fields and at such reasonable cost as the space program is now doing.

Perhaps nowhere is the impact felt more than in the field of education. Dr. Charles Stark Draper of the Massachusetts Institute of Technology has said:

"The overall effect of space exploration is...to advance education generally, to stimulate the development of new areas of learning, and to provide strong motivations for students to follow academic careers to completion. More especially, the challenges of space exploration and the opportunities associated with its accomplishments are very effective for the development of creativity in talented individuals.

"Effects from this creativity in terms of innovations and benefits for society go far beyond the space program itself. It may well be the verdict of future history that the general stimulation of education and creativity has been a greater return from funds and work invested than any direct results from space activities. In any case, prospects are exciting and the effort involved ~~with~~ will contribute largely to the general progress of our country and its image as a leader among the countries of the earth."

Those words were spoken sometime ago, but they grow increasingly true as time goes by.

In many ways it is difficult to comprehend how much has been accomplished in the time-span of a single decade. Just last week, on October 1, the National Aeronautics and Space Administration celebrated its tenth anniversary. And while we are still in what might be described as the "Wright Brothers' years" of the space age, already we have reached the point where the American people are realizing great direct returns on their investment.

There is no point in going into detail here, but suffice it to say that we have learned a great deal about the sun, our neighboring planets, the space that surrounds us, and our own earth. We have taken close-up pictures of the moon, including its hidden far side, measured the physical properties of the planet Venus, and returned television pictures of the planet Mars from a spacecraft guided with the greatest precision during a journey that lasted for many months and traversed millions of miles.

We have not been solely occupied with the conduct of scientific experiments in space, as important to knowledge as these investigations are. We have also made great progress in using the new arena of space to solve some of our problems here on earth. We have intercontinental commercial communications, including color TV, via satellite.

The Weather Bureau is using satellites on an everyday operational basis to get a truly global look at the weather. Hurricanes and storms have been spotted and tracked in advance, saving lives and property.

Navigational satellites are being used to provide precise locational data for ships at sea. And we are now studying the potential uses and advantages of satellites that might be used to gather vast amounts of data about agricultural crops, forests, mineral wealth, water resources, geological formations, and other useful items about our earth that could not be gathered in any other way.

We have proved, with projects Mercury and Gemini, that man can live and work in space for extended periods. With Project Apollo we have developed the vehicles, the spacecraft, the research centers, the spaceports, the communications networks, and the trained personnel that will permit American astronauts to work and operate in space at distances of a quarter of a million miles from earth. Without this ability, the United States might sink to the level of a second-rate power.

So, as we push ahead with our key project Apollo, the energies of a truly national team are being clearly evidenced. Before I close, I would like to touch briefly on a very important upcoming mission -- the first manned flight of Project Apollo, known as Apollo Seven, which is scheduled to take place before the end of this week.

This flight is extremely important to our program for many reasons. It is, as I mentioned, the first manned flight with our Apollo spacecraft -- the same kind of spacecraft that will carry a three-man team of United States astronauts to the moon and back before the end of this decade.

Apollo Seven is also our first manned flight using the Saturn I-B launch vehicle, which is far more powerful than the Titan II we used in the Gemini series. But even the Saturn I-B looks small when we compare it with the mighty Saturn Five moon rocket. We hope to make a manned flight using this vehicle several months after Apollo Seven is completed.

The Apollo Seven mission may last for almost eleven days, if everything goes according to plan. It is intended to demonstrate the performance of the spacecraft's command and service modules, the crew, and the support facilities.

We plan to launch a total of eight Saturn V-Apollo missions before the end of next year. No one can predict now, of course, just when we will have completed enough of these important tests to be ready to send our mission to the moon. Let me say, however, that we have strong hopes of meeting the goal established by President Kennedy in 1961 of landing American explorers on the moon before the end of this decade.

All of these developing capabilities which I have been describing have deep meaning not just for our own times but for future generations. Already a change in attitude is clearly growing. In our own lifetimes we have experienced numerous major adjustments in our lives -- under the impact of the airplane, atomic power, missiles, and space exploration. The transistor, the computer, satellite communications, the laser, automatic data processing, and a host of other technological developments are changing our environment as they add to our abilities to cope with it. Our children, even more than ourselves, will have to accept continual adaptation as a way of life.

Innovation will be the keynote as future generations learn to adapt to an environment of rapid change. The whole future depends on the depth of our desire to know, to acquire deeper learning, and to keep pressing outward the boundaries of our limited understanding.

And you in the universities will be leading the way as we move forward in our search for greater knowledge.

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